

ADM800

AS Java 7.3 – Administration

SAP NetWeaver

Course Outline

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Course Overview

This course provides an overview of the various tasks of the system administration for systems that are based on SAP NetWeaver AS Java 7.31. This course provides a solid foundation for the training of system administrators of SAP NetWeaver AS Java 7.31. This course deals with the basic activities that affect SAP NetWeaver AS Java 7.31. However, no application-specific or product-specific activities are taught.

Target Audience

This course is intended for the following audiences:

- Administrators and consultants for SAP systems that are based on SAP NetWeaver AS Java 7.3x, for example SAP NetWeaver Portal 7.31 and SAP NetWeaver PI 7.31

Course Prerequisites

Required Knowledge

- SAPTEC Fundamentals of SAP NetWeaver Application Server

Recommended Knowledge

- ADM100 Administration AS ABAP I

Course Goals

This course will prepare the participant to:

- Explain the architecture of SAP NetWeaver AS Java
- Start and stop SAP NetWeaver AS Java
- Carry out basic configurations for SAP NetWeaver AS Java
- Classify network security concepts
- Set up SSL encryption for SAP NetWeaver AS Java
- Explain the architecture of the User Management Engine
- Configure the User Management Engine
- Carry out user and authorization maintenance
- Understand and change the standard logon procedure of SAP NetWeaver AS Java
- Maintain destinations and the JCo RFC Provider
- Understand the architecture and the tasks of the SAP NetWeaver Development Infrastructure
- Explain the process flow of the development process using the SAP NetWeaver Development Infrastructure
- Specify the options for monitoring SAP NetWeaver AS Java
- Connect SAP NetWeaver AS Java to a central Monitoring system
- Display Monitoring and logging data using the SAP NetWeaver Administrator
- Implement corrections for SAP NetWeaver AS Java

Course Objectives

After completing this course, the participant will be able to:

- Explain the architecture of SAP NetWeaver AS Java
- Start and stop SAP NetWeaver AS Java
- Carry out basic configurations for SAP NetWeaver AS Java
- Classify network security concepts
- Set up SSL encryption for SAP NetWeaver AS Java
- Explain the architecture of the User Management Engine
- Configure the User Management Engine
- Carry out user and authorization maintenance
- Understand and change the standard logon procedure of SAP NetWeaver AS Java
- Maintain destinations and the JCo RFC Provider
- Understand the architecture and the tasks of the SAP NetWeaver Development Infrastructure
- Explain the process flow of the development process using the SAP NetWeaver Development Infrastructure
- Specify the options for monitoring SAP NetWeaver AS Java

- Connect SAP NetWeaver AS Java to a central Monitoring system
- Display Monitoring and logging data using the SAP NetWeaver Administrator
- Implement corrections for SAP NetWeaver AS Java

Unit 1

Fundamentals

Unit Overview

SAP NetWeaver Application Server is a scalable and reliable component platform. It provides a complete development infrastructure, to develop, distribute, and execute platform-independent, robust, and scalable Web services and business applications. SAP NetWeaver Application Server supports both ABAP and Java and Web services. To do this, the classic SAP Basis was extended with the Internet Communication Manager (ICM) for SAP Web Application Server 6.10. In the next evolutionary step, SAP Web Application Server was extended with the SAP Web Application Server Java for SAP Web Application Server 6.20. As of Release 6.40, SAP NetWeaver AS ABAP and SAP NetWeaver AS Java is a central component of SAP NetWeaver.

This unit describes the technical fundamentals and the architecture of AS Java 7.3x.

Lesson: Fundamental Concepts of Java

Lesson Objectives

After completing this lesson, the participant will be able to:

- Use basic Java terminology

Lesson: Architecture of the SAP NetWeaver Application Server

Lesson Objectives

After completing this lesson, the participant will be able to:

- Explain the architecture of SAP NetWeaver Application Server

Lesson: Java Cluster Architecture

Lesson Objectives

After completing this lesson, the participant will be able to:

- Explain the term Central Services of SAP NetWeaver AS Java
- Understand and use concepts such as Java instance, ICM, and server

Lesson: The Internal Structure of SAP NetWeaver AS Java

Lesson Objectives

After completing this lesson, the participant will be able to:

- Name the most important managers of the SAP NetWeaver AS
- Name the most important services of the SAP NetWeaver AS

Lesson: Load Balancing in the SAP NetWeaver AS Java Environment

Lesson Objectives

After completing this lesson, the participant will be able to:

- Explain how load balancing can be realized in the SAP system

Unit 2

Starting and Stopping

Unit Overview

This unit describes the process when starting an SAP NetWeaver AS Java. SAP NetWeaver AS Java uses the *Startup and Control Framework* to perform the start process of the Java instances. On all operating systems, it is possible to use the SAP Management Console for starting and stopping. In the Windows operating system, it is also possible to use the Microsoft Management Console (SAP MMC). In the UNIX operating system, it is also possible to use the *startsap* and *stopsap* scripts or the operating system independent command line tool *sapcontrol*. Finally, the log and trace files of the start/stop process are listed.

Lesson: Overview of the Process for Starting and Stopping an SAP NetWeaver AS Java

Lesson Objectives

After completing this lesson, the participant will be able to:

- Describe the sequence in which the components of an SAP system are started and stopped
- Describe the general start process for an SAP NetWeaver AS Java
- Describe the general start process for an SAP NetWeaver AS ABAP + Java

Lesson: Tools for Starting and Stopping

Lesson Objectives

After completing this lesson, the participant will be able to:

- Operate the tools to start and stop SAP NetWeaver AS ABAP + Java
- Operate the tools to start and stop SAP NetWeaver AS Java

Lesson: Java Startup and Control Framework

Lesson Objectives

After completing this lesson, the participant will be able to:

- Use the term Startup and Control Framework
- Describe the individual steps during the start and stop processes of a Java instance

Lesson: Logs of the Start and Stop Processes of SAP NetWeaver AS Java

Lesson Objectives

After completing this lesson, the participant will be able to:

- Find the storage locations of trace and log files of the Startup and Control Framework.
- Name the most important trace and log files of the Startup and Control Framework and review their content.

Unit 3

Basic Configuration

Unit Overview

This unit presents the most important administration tools for AS Java. After a basic overview of the tools, some basic configuration activities are carried out using the Config Tool. We also take a look at memory management of SAP Java VM here. Further system configurations are then introduced.

Lesson: Overview of the Administration Tools

Lesson Objectives

After completing this lesson, the participant will be able to:

- Name various configuration and administration tools for SAP NetWeaver AS Java
- Describe the primary usage areas of configuration and administration tools

Lesson: Basic Configuration of AS Java with the Config Tool

Lesson Objectives

After completing this lesson, the participant will be able to:

- Maintain settings for the SAP NetWeaver AS Java with the Config Tool

Lesson: Configuring AS Java with SAP NetWeaver Administrator

Lesson Objectives

After completing this lesson, the participant will be able to:

- Display system properties in the SAP NetWeaver Administrator

Lesson: Further Configuration Activities

Lesson Objectives

After completing this lesson, the participant will be able to:

- Get an overview of the Configuration Wizard
- Check and maintain properties of the Central Services

Unit 4

Secure Infrastructure

Unit Overview

A secure infrastructure is a prerequisite for different aspects of security in SAP systems, for example access control and data security. The first lesson should give an overview of different aspects of network security, whereas the second lesson concentrates on the theoretical background and concrete configuration activities with regard to the Secure Socket Layer (SSL).

Lesson: Network Security

Lesson Objectives

After completing this lesson, the participant will be able to:

- explain why safeguarding the network communication is necessary
- describe which technical components can be protected via secure network protocols
- Classify concepts of the Web Service Security

Lesson: Setting Up SSL

Lesson Objectives

After completing this lesson, the participant will be able to:

- Describe different encryption processes
- Point out the relationship between authentication and digital signatures
- Explain the server authentication mechanism used within SSL
- Set up SSL with the SAP NetWeaver Administrator

Unit 5

User and Authorization Administration

Unit Overview

The structure and configuration of the User Management Engine (UME) and the use of the associated administration tools are explained in this unit. The standard actions in the user administration environment, such as creating users and creating and assigning authorizations and roles are presented. The concluding lesson *Logon Procedure of AS Java* should complete your understanding of this topic.

Lesson: Structure and Configuration of the User Management Engine (UME)

Lesson Objectives

After completing this lesson, the participant will be able to:

- List the various UME data sources
- Determine the current data source assignment
- Explain the term UME data partitioning
- Identify and modify configuration parameters

Lesson: User and Group Administration

Lesson Objectives

After completing this lesson, the participant will be able to:

- List and use the tools for administering users and groups

Lesson: The Java Authorization Concept

Lesson Objectives

After completing this lesson, the participant will be able to:

- Explain the terms UME role and JEE security role
- List the authorization administration tools
- Assign actions and JEE security roles to a UME role
- Assign authorizations to users and groups

Lesson: Special Principles

Lesson Objectives

After completing this lesson, the participant will be able to:

- List a number of "special" principles
- Change the password of the standard administration user
- Activate the emergency user

Lesson: Logon Procedure of the AS Java

Lesson Objectives

After completing this lesson, the participant will be able to:

- list the supported logon procedures of the AS Java
- explain the functions of login modules
- change the standard logon procedure of the AS Java
- explain Kerberos logon (SPNego)
- set up X.509 logon

Unit 6

Java Connector and Destinations

Unit Overview

This unit describes various communication options of AS Java with other systems. The focus is on the first lesson, which gives an overview of the communication options and takes a look at "Destinations" and the "JCo RFC Provider". In the appendix, there is a brief overview of the Java Connector Architecture from the management view.

Lesson: Connections to other Systems

Lesson Objectives

After completing this lesson, the participant will be able to:

- List some communication paths
- Maintain connections of the destination service
- Maintain JCo RFC connections

Lesson: Appendix: Connections to other Systems with the Java Connector Architecture

Lesson Objectives

After completing this lesson, the participant will be able to:

- Locate the JCA Connection Factories of the SAP Java Resource Adapter.
- Maintain parameters of a JCA Connection Factory of the SAP Java Resource Adapter.
- Create a new JCA Connection Factory for the SAP Java Resource Adapter.

Unit 7

Change Management and Software Logistics

Unit Overview

As with the ABAP stack, SAP delivers a complete infrastructure for developing and transporting Java applications for AS Java. This SAP NetWeaver Development Infrastructure (NWDI) consists of a local development environment (IDE) and central server-side services that provide development teams with a consistent central development environment and support software development during the entire lifecycle of a product.

This unit first provides a general introduction to the process of Java developments. Then, SAP NWDI and its elements are introduced. One additional lesson discusses the steps required to configure the central infrastructure for the development within SAP NetWeaver Portal 7.31. After this configuration has been performed, a small, existing Java application is modified as an example using SAP NetWeaver Developer Studio (the IDE delivered by SAP) in another lesson. This application is finally transported to the quality assurance system and to the production system.

Depending on the release of both SAP NetWeaver Development Infrastructure and the runtime systems, there are different transport scenarios available. This unit focusses on the use of Change Management Service (CMS) together with its integration into the enhanced Change and Transport System (CTS+) of the AS ABAP. In this scenario, the transport into subsequent system (such as the quality assurance system or the production system) can be triggered from an AS ABAP based Transport Management System (transaction STMS).

Lesson: Overview of the Standard Java EE Development Process

Lesson Objectives

After completing this lesson, the participant will be able to:

- List the elements of a Java EE application
- Outline the steps required to develop an executable Java EE application
- Name differences between ABAP-based development and Java-based development

Lesson: Introduction to SAP NetWeaver Development Infrastructure (NWDI)

Lesson Objectives

After completing this lesson, the participant will be able to:

- List the building blocks of SAP NetWeaver Development Infrastructure and explain their meaning
- Explain the idea of SAP's component model for the development of Java based SAP applications
- Outline the use of Change Management Service and the enhanced Change and Transport System for the use with SAP NetWeaver Development Infrastructure

Lesson: Preparing for the Development of Java Applications

Lesson Objectives

After completing this lesson, the participant will be able to:

- Define the terms track, CMS domain and development configuration, distinguish them from each other, and outline their meaning for the SAP NetWeaver Development Infrastructure
- Connect SAP NetWeaver Developer Studio to the central components of SAP NetWeaver Development Infrastructure

Lesson: Developing Java Objects in SAP NetWeaver Developer Studio

Lesson Objectives

After completing this lesson, the participant will be able to:

- List the individual steps that are required from the start of developing / changing Java objects to releasing these changes in the central development system
- Outline the structure of the Design Time Repository (DTR)

Lesson: Transporting Java Developments

Lesson Objectives

After completing this lesson, the participant will be able to:

- Import changes into the quality assurance system
- List the individual transport steps for the integration of the Change Management Service into the enhanced Change and Transport System

Unit 8

Monitoring

Unit Overview

You can monitor SAP NetWeaver AS Java either locally in SAP NetWeaver AS Java itself or centrally using a central monitoring system (SAP NetWeaver AS ABAP). This unit shows both the local and central monitoring possibilities.

Lesson: Monitoring SAP NetWeaver AS Java

Lesson Objectives

After completing this lesson, the participant will be able to:

- Describe the monitoring infrastructure
- Display monitoring data in the SAP NetWeaver Administrator (NWA)
- Make threshold value settings in the NWA

Lesson: Connecting to a Central Monitoring System

Lesson Objectives

After completing this lesson, the participant will be able to:

- Monitor Java instances in the central monitoring system
- Explain which configuration steps are required to be able to maintain the threshold values for Java instances from the central monitoring system

Lesson: Availability Monitoring

Lesson Objectives

After completing this lesson, the participant will be able to:

- Describe how an availability check using the GRMG works technically
- Configure an availability check

Lesson: Log Viewer and Log Configuration

Lesson Objectives

After completing this lesson, the participant will be able to:

- Use the Log Viewer
- Explain the difference between logging and tracing
- Execute log configuration

Lesson: Introduction to Monitoring using SAP Solution Manager

Lesson Objectives

After completing this lesson, the participant will be able to:

- list technical components required for different monitoring capabilities of SAP Solution Manager 7.1
- Describe selected functions and their use

Unit 9

Software Maintenance

Unit Overview

For every type of software, there are corrections that must be installed. This unit provides an overview of the update of AS Java-based SAP systems. The tools for incorporating the corrections are introduced.

The support and maintenance of an SAP system includes the execution of backups on a regular basis. This unit explains which components should be taken into account when backing up.

Lesson: Preparation for Software Maintenance

Lesson Objectives

After completing this lesson, the participant will be able to:

- Explain the functions of the Maintenance Optimizer (MOpz)
- Describe and execute a maintenance transaction
- Explain the concept of maintenance certificates

Lesson: Java Support Packages, Stacks and Patches

Lesson Objectives

After completing this lesson, the participant will be able to:

- Describe the relationship between Support Packages, Patches, Support Package Stacks and Support Packages with Patches
- Describe the relationship between Product Version, Product Instance, Software Component and Support Package

Lesson: Importing Corrections with SUM for AS Java

Lesson Objectives

After completing this lesson, the participant will be able to:

- Call the Software Update Manager (SUM)
- Import Support Packages and Support Package Stacks for SAP NetWeaver AS Java 7.3x-based systems.

Lesson: Appendix: Importing Corrections with JSPM

Lesson Objectives

After completing this lesson, the participant will be able to:

- Call the Java Support Package Manager (JSPM).
- Import Support Packages and Support Package Stacks for SAP NetWeaver AS Java 7.1x-based systems.

Lesson: Backing Up AS Java

Lesson Objectives

After completing this lesson, the participant will be able to:

- Explain which regular backups are required for the SAP NetWeaver AS Java.